Hanford Federal Facility Agreement and Consent Order

Tentative Agreement

Shutdown of the U. S. Department of Energy's (DOE's) Fast Flux Test Facility (FFTF).

Modification of HFFACO FFTF transition milestones and targets (M-81-00 series), and related HFFACO milestone M-20-29A

August 1 2002

CHANGE NUMBER M-81-02-01	**FEDERAL FACILITY AGREEMENT AND CONSENT ORDER** **Change Control Form** DO NOT USE BLUE INK TYPE OR PRINT USING BLACK INK.	DATE 7/31/2002

Originator: US DOE/Ecology

Phone:

Class of Change

[x] I – Signatories [ ] II – Executive Manager [ ] III – Project Manager

Change Title

Reestablish milestones and target dates for the shutdown (transition; Pursuant to Tri-Party Agreement Section 8) of the Fast Flux Test Facility (FFTF) (M-81-00 series and M-20-29A).

Description/Justification of Change

This Change Request establishes a revised set of M-81 series milestones and targets and revises the M-20-29A milestone associated with the transition of the FFTF to a deactivated state. Major transition activities consist of, but are not limited to: 1) dry cask storage of irradiated fuel, 2) dry storage of unirradiated and sodium bonded fuel, 3) sodium drain and storage, and 4) deactivation of the auxiliary plant systems. In implementing these transition activities, pursuant to Tri-Party Agreement Section 8, DOE will comply with all applicable federal and state laws and requirements, while maintaining worker and public safety. When transition is complete, the FFTF will be in a radiologically and industrially safe configuration with reduced risk to plant workers, the public, and the environment. After the FFTF transition is complete, the plant will be in a surveillance and maintenance mode and routinely monitored until decommissioning is completed.

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Impact of Change

This change request establishes a revised set of M-81-00 series milestones and target dates and revises the M-20-29A milestone for the transition of the FFTF complex.

These milestones do not adversely impact other existing or contemplated (e.g., PFP deactivation) Tri-Party Agreement milestones. However, there are links between some of these milestones and other Tri-Party Agreement milestones (e.g., M-92-09 and –10 and the Office of River Protection's use of FFTF sodium converted to sodium hydroxide).

Affected Documents

The Hanford Federal Facility Agreement and Consent Order, as amended, and Hanford Site internal planning, work authorization, and budget documents (e.g., Project Management Plans, Baseline Change Control documents).

Approvals

DOE	Michael H. Schlender 5/13/03 Date	X Approved	___ Disapproved
EPA	5/21/03 Date	X Approved	___ Disapproved
Ecology	5-16-03 Date	X Approved	___ Disapproved

FFTF was previously proceeding with transition in conjunction with Agreement Change number M-81-94-01. As a result of these activities major FFTF transition activities completed are 1) defueling the reactor vessel to the fuel storage and interim decay storage vessels, 2) design, procurement and receipt of 30 Interim Storage Casks (ISCs), 3) washing residual sodium and storing in above ground dry storage (ISCs) all the spent fuel with no potential future use (126 assemblies), 4) design and construction of the Sodium Storage Facility (SSF), and 5) deactivation of 23 of the approximately 100 plant operating systems.

In January 1997, the Secretary of Energy issued a Departmental decision to maintain FFTF in a standby condition while an evaluation was conducted of any future missions for the facility. On August 18, 1999, the Secretary decided to initiate the preparation of a National Environmental Policy Act (NEPA) Programmatic Environmental Impact Statement (PEIS) which included an evaluation of the potential impacts associated with restarting the FFTF as a nuclear science research and irradiation services user facility. In December 2000, the "Programmatic Environmental Impact Statement for Accomplishing Expanded Civilian Nuclear Energy Research and Development and Isotope Production Missions in the United States, Including the Role of the Fast Flux Test Facility" was published (DOE/EIS-0310, December 2000). The corresponding Record of Decision (ROD) was issued in the Federal Register on January 26, 2001, which included a decision that the FFTF will be permanently deactivated. On April 25, 2001, the Secretary of Energy announced a suspension of the decision to permanently deactivate FFTF to allow for additional evaluation. Following that review (on December 19, 2001) the Secretary of Energy confirmed the decision to decommission the reactor and announced that the Department was proceeding with deactivation of the facility.

As a result of FFTF being placed in standby, uncompleted activities associated with Agreement M-81-94-01 were placed in abeyance by Agreement Change M-81-98-01. As a result of the Secretary's decision to shutdown the reactor, this Agreement Change establishes revised FFTF transition milestones and targets.

Throughout the FFTF transition project, opportunities to implement waste minimization activities will continue to be assessed and implemented to the extent possible. Waste minimization activities during the project include the recycle, reuse or return to the original vendor of process fluids from the plant systems and auxiliary equipment (i.e., sodium, ethylene glycol, fuel oil, mobiltherm oil, and cooling tower chemicals). The following descriptive text documents actions necessary for the compliant management of PCB contaminated transformer oils.

Management of polychlorinated biphenyl (PCB) bearing transformers:

FFTF's fourteen Polychlorinated Biphenyl (PCB) electrical transformers will be disposed of following their removal from service as reactor transition proceeds. Management and disposal shall be in accordance with the requirements of the *Toxic Substances Control Act* (TSCA) and it's implementing requirements (40 CFR 761). Seven of FFTF's fourteen transformers will be drained, flushed and removed from FFTF within (30) days after being removed from service. Seven of the transformers, which are in areas difficult to obtain access to, will be drained, flushed, and removed from FFTF within nine (9) months of cessation of service to ensure their disposal within one year from start of storage. Cessation of service constitutes start of storage. 40 CFR 761 limits this storage and subsequent disposal to a one year period.

The milestones and targets identified in the following text document Agreement actions necessary to complete FFTF transition.

The following Agreement M-81-00A series milestones and target dates (reproduced below) replace the existing M-81-00 series, and are established on approval of this M-81-02-01 change request.

Milestone	Description	Due Date
M-81-00A	Complete FFTF Facility Transition and initiate the surveillance and maintenance phase. Completion of FFTF transition will include, but is not limited to the completion of: 1) dry cask storage of irradiated fuel, 2) dry storage of unirradiated and sodium bonded fuel, 3) sodium drain and storage 4) deactivation of the auxiliary plant systems. Work under this major milestone will be achieved by completing all activities necessary to achieve the end point criteria for placing the facility in a safe and stable surveillance and maintenance configuration.	2/28/2011
M-81-00-T01	Complete Reactor Defueling. At the completion of defueling, there will be 236 non-fueled components in the reactor vessel, 113 fueled components in the interim decay storage and 258 fueled components in the fuel storage facility.	9/30/1995 Completed 4/19/1995
M-81-00A-T02[1]	Complete transfer of unirradiated fuel to secure onsite storage. Thirty two unirradiated fuel assemblies presently stored in the interim decay storage vessel will be transferred to the Interim Examination and Maintenance (IEM) cell for washing and drying, loaded into existing approved shipping containers, and transferred to secure onsite storage (Should DOEs Savannah River Site (SRS) become available for FFTF fuel storage, this fuel may be shipped directly to SRS pending approval of environmental documentation).	3/31/2009

[1] The sequence of washing of unirradiated, irradiated and special fuel groups as identified in Target Dates M-81-00A-T02, M-81-00A-T03 and M-81-00A-T04 are dependent upon currently unknown external schedules (i.e. PFP shutdown schedule and INEEL (ANL-W) storage schedule), however, all the fuel will be washed and stored in time to meet the milestone date. Fuel washing operations for the fuel groups will be sequenced to accommodate storage schedules for each fuel group.

Milestone	Description	Due Date
M-81-00A-T03[1]	Complete transfer of irradiated fuel to secure onsite storage. Irradiated fuel assemblies and pin containers will be transferred from the interim decay storage vessel and the fuel storage facility to the IEM cell for residual sodium removal, loaded into a core component container, transferred to the reactor service building cask loading station for placement into an interim storage cask for dry storage, and transferred to secure Hanford site storage.	3/31/2009
M-81-00A-T04[1]	Complete transfer of special fuel to DOEs Idaho National Engineering Laboratory for consolidated storage. Sodium-bonded irradiated metal and carbide fuel from assemblies cleaned in the IEM Cell will be loaded into existing, approved shipping casks, and transported to the Idaho National Engineering Laboratory (INEEL, ANL-W) in Idaho Falls, Idaho, for consolidated storage. Should the INEEL, ANL-W facility not be readily available, sodium bonded fuel will be loaded in Interim Storage Casks and transferred to a storage location on the Hanford Site (e.g., 200 or 400 Area Interim Storage Areas). One unirradiated metal fuel assembly will also be dispositioned in a similar manner.	3/31/2009
M-81-00A-T05	Complete auxiliary plant systems deactivation. A major portion of the plant auxiliary systems are required to support hot sodium circulation prior to draining the sodium. As these systems, and the balance of plant systems, become available for shutdown, they will be deactivated to a safe, stable condition.	2/28/2011
M-81-01	Initiate sodium storage facility construction. This milestone will be achieved when the construction contractor is issued the notice to proceed with construction by the contracting officer.	2/28/1997 completed 10/09/1995

[1] The sequence of washing of unirradiated, irradiated and special fuel groups as identified in Target Dates M-81-00A-T02, M-81-00A-T03 and M-81-00A-T04 are dependent upon currently unknown external schedules (i.e. PFP shutdown schedule and INEEL (ANL-W) storage schedule), however, all the fuel will be washed and stored in time to meet the milestone date. Fuel washing operations for the fuel groups will be sequenced to accommodate storage schedules for each fuel group.

Milestone	Description	Due Date
M-81-02	Complete sodium storage facility startup. This milestone will be achieved by completion of the sodium storage facility startup activities, which include final testing of the mechanical and electrical systems and confirmation that the facility is ready to receive sodium from FFTF. Construction of the new facility closely coupled to the FFTF complex is required to support sodium drain operations. This new facility will be designed, constructed and operated in compliance with RCRA and WAC 173-303 storage requirements. The facility will provide storage capacity for the 260,000 gallons of FFTF metallic sodium coolant.	7/31/1998 completed 01/1997
M-81-10-T01	Submit final sodium disposition evaluation report The Office of River Protection will use the Hanford Site radioactive sodium inventory (i.e., FFTF, Hallam and SRE sodium following conversion to sodium hydroxide) in the Waste Treatment Plant (WTP) for tank sludge pretreatment (i.e., caustic washing). A report will be prepared in concert with M-92-10 to: 1) determine where the sodium will be converted (i.e., an existing facility operated by Argonne National Laboratory – West (ANL-W) located within the INEEL site or at a new facility to be constructed adjacent to the Sodium Storage Facility) and 2) to establish need dates for delivery of the caustic to WTP. Following submittal of this report, appropriate milestones and/or target dates will be established for the final disposition of the sodium.	09/30/2005
M-81-11	Submit FFTF End Point Criteria Document. A document identifying the end point criteria necessary to place the FFTF in a safe and stable surveillance and maintenance configuration will be developed. This document will be provided to EPA and Ecology for review, and approval for the regulated units and/or hazardous substances proposed to remain at the facility after transition is complete.	8/31/2005

Milestone	Description	Due Date
M-81-12	Initiate FFTF Sodium Drain. This milestone will be complete when the drain of the first secondary loop is begun. Completion will be achieved when all the preparatory actions (i.e., procedures written and approved, plant configuration line-up, Operator training, facility startup review) have been completed and sodium is being transferred to in-plant tank T-44.	6/30/2003
M-81-13	Complete reactor and heat transport system sodium drain. Primary and Secondary heat transport systems, Reactor Vessel (including reactor vessel plenum), and supporting sodium systems will be drained to the sodium storage facility to the maximum extent practical. The sodium will be stored as product material in the sodium storage facility. Remaining sodium residuals (est. 3600 "gallons") will be solid in form (adhering to the surfaces of system components, small pockets inherent to the reactor design, and in heat transport system cold traps and valves). These residuals will be maintained under an inert gas blanket or passivated to minimize potential reactions during the long-term surveillance and maintenance phase. During final facility disposition, any regulated wastes generated from the cleaning or dismantlement of these systems will be managed in compliance with applicable regulatory requirements.	6/30/2005
M-81-14-T01	Complete Fuel Storage Facility sodium drain. The Fuel Storage Facility vessel will be drained to the sodium storage facility to the maximum extent practical. Sodium residuals will be maintained under an inert gas blanket or passivated to minimize potential reactions during the long-term surveillance and maintenance phase. During final facility disposition, any regulated wastes generated from the cleaning or dismantlement of these systems will be managed in compliance with applicable regulatory requirements.	4/30/2007
M-81-14-T02	Initiate Interim Decay Storage Vessel sodium drain. This milestone will be complete when sodium drain from the Interim Decay Storage Vessel is begun. Completion will be achieved when all the preparatory actions (i.e., procedures written and approved, plant configuration line-up, Operator training, facility startup review) have been completed and sodium is being transferred to in-plant tank T-43.	6/30/2008

Milestone	Description	Due Date
M-81-14	Complete FFTF Sodium Drain. This milestone will be complete when all sodium (with the exception of noted sodium residuals) has been drained from the FFTF reactor and its associated systems and the fuel storage vessels.	9/30/2009
M-81-15	Submit FFTF Surveillance and Maintenance Plan. DOE will develop a plan detailing S&M activities to occur at FFTF during the S&M phase. This plan will be provided to EPA and Ecology for review, and approval for the regulated units and/or hazardous substances proposed to remain at the facility. This plan will include documentation of lists of hazardous substances including dangerous wastes that remain in the FFTF Facility upon completion of transition because the hazardous substance: (1) contains non-dangerous waste components that are highly radioactive, (2) is part of the plant structure and/or (3) is an intact piece(s) of equipment.	06/30/2010

The following M-20-29B interim milestone replaces existing milestone M-20-29A.

Milestone	Description	Due Date
M-20-29B	Submit sodium storage facility and sodium reaction facility closure plan or request for procedural closure to Ecology as defined in Agreement section 6.3.3. FFTF constructed the sodium storage facility (SSF) on the basis of providing RCRA and WAC 173-303 compliant storage for the sodium in the event it was determined not to be product material. The sodium reaction facility (SRF) was also included in the permit request, even though construction of the SRF was not planned at that time. The FFTF, Hallam and SRE sodium will be used as a product feedstock in the pretreatment at the Waste Treatment Plant (WTP). The sodium will be stored as product material in the sodium storage facility. Therefore, a request for procedural closure as defined in section 6.3.3 of the Agreement will be submitted for the SSF and SRF units.	06/30/2003